

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
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RECEIVED

13 JUN 2007

FILE NO. 29688
G.E. EHRLICH (1995) LTD.

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference 29688	Date of mailing (day/month/year) <u>24 MAY 2007</u> d
International application No. PCT/IL05/00575	International filing date (day/month/year) 01 June 2005 (01.06.2005)
Applicant V-TARGET TECHNOLOGIES LTD.	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland. Facsimile No.: (41-22) 338.82.70.

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 29688	FOR FURTHER ACTION <div style="display: flex; justify-content: space-between; font-size: small;"> see Form PCT/ISA/220 as well as, where applicable, item 5 below. </div>	
International application No. PCT/IL05/00575	International filing date (<i>day/month/year</i>) 01 June 2005 (01.06.2005)	(Earliest) Priority Date (<i>day/month/year</i>) 01 June 2004 (01.06.2004)
Applicant V-TARGET TECHNOLOGIES LTD.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the **language**, the international search was carried out on the basis of:



the international application in the language in which it was filed.



a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☒ **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 4c



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
 2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
 3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

 4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
-
- Remark on Protest**
- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
 - ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
 - ☒ No protest accompanied the payment of additional search fees.

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Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

Systems, methods, and probes are provided for functional imaging by radioactive-emission-measurements, specific to body structures, such as the prostate, the esophagus, the cervix, the uterus, the ovaries, the heart, the breast, the brain, and the whole body, and other body structures (fig. 5c element 206). The nuclear imaging may be performed alone, or together with structural imaging, for example, by x-rays, ultrasound, or MRI. Preferably, the radioactive-emission-measuring probes include detectors, which are adapted for individual motions with respect to the probe housings, to generate views from different orientations and to change their view orientations (fig. 5c element 207). These motions are optimized with respect to functional information gained about the body structure, by identifying preferred sets of views for measurements, based on models of the body structures and information theoretic measures (fig. 5c element 208). A second iteration, for identifying preferred sets of views for measurements of a portion of body structure, based on models of a location of a pathology that has been identified, makes it possible, in effect, to zoom in on a suspected pathology. The systems are programmed to provide these motions automatically.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC: G06K 9/00(2006.01)

USPC: 382/128;128/922;250/583,586,339.06,341.2,370.08,393;600/11,436,459,2;378/1,2,4,5,11,13,16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 382/128;128/922;250/583,586,339.06,341.2,370.08,393;600/11,436,459,2;378/1,2,4,5,11,13,16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003/0081716 A1 (TUMER) 01 May 2003 (01.05.2003)	1-7
A	US 2002/0103431 A1 (TOKER et al.) 01 August 2002 (01.08.2002)	1-7
A	US 6,076,009 (RAYLMAN et al.) 13 June 2000 (13.06.2000)	1-7
A	US 2002/0099295 A1 (GIL et al.) 25 July 2002 (25.07.2002)	1-7
A	US 2003/0202629 A1 (DUNHAM et al.) 30 October 2003 (30.10.2003)	1-7
X	US 6,346,706 (ROGERS et al.) 12 February 2002 (12.02.2002) fig. 2 elements 28,32,34, and	33-39 and 41
---	60, fig. 5 elements 152-154c, col. 1 lines 15-20, col. 12 line 40 to col. 13 line 25, col. 14 line	-----
A	55-65, and col. 17 line 62 to col. 18 line 12.	40



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:		"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

14 April 2007 (14.04.2007)

Date of mailing of the international search report

24 MAY 2007

Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL05/00575

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,579,766 (Gray) 03 December 1996 (03.12.1996)	31,45,50,57,62,111, & 116
A	US 7,043,063 B1 (NOBLE et al.) 09 May 09 2006 (09.05.2006)	31,45,50,57,62,111 & 116
A	US 2002/0183645 A1 (NACALIEL) 05 December 2002 (05.12.2002)	31,45,50,57,62,111 & 116
A	US 2004/0101176 A1 (MENDONCA et al.) 27 May 2004 (27.05.2004)	31,45,50,57,62,111, and 116
A	US 6,549,646 B1 (YEH et al.) 15 April 2003 (15.04.2003)	31,45,50,57,62,111, and 116

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BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I. Claims 1-7 are directed to a radioactive emission measuring probe wherein a detector in a housing detects photons and a volume of the detected photons is produced.

Group II. Claims 8-25, 27, 43, 48, 55, 60, and 114 are directed to modeling a body structure from different obtained views, scoring these views and selecting a set of views based on the scoring.

Group III. Claims 28-30, 44, 49, 56, 61, 110, and 115 are directed to modeling a body structure based on different views, scoring the views, selecting a set of views, and performing a diagnostic measurements of an in-vivo body structure.

Group IV. Claims 32, 46, 51, 58, 63, and 112 are directed to modeling a body structure from different views obtained with different probes, scoring the views, and selecting a probe design.

Group V. Claims 33-41 are directed to a detection unit in a housing that is adapted to moving in respect to the housing, a motion provider, and a controlling unit that controls the motion of the detecting unit.

Group VI. Claims 42, 47, 52, and 59 are directed to a housing with cylindrical coordinates of a longitudinal axis and a radius, and inner housing, two assemblies, two motion providers, a controller, etc.

Group VII. Claims 31, 45, 50, 57, 62, 111, and 116 are directed to modeling a body structure from different views, scoring the different views, selecting a set of different views, performing diagnostic measurements of an in-vivo body structure, identifying a suspected pathological location, modeling this suspected area, scoring views of this area, etc.

Group VIII. Claims 64-72 are directed to a bed which is adapted to motion through a 3D imaging device.

Group IX. Claims 73-78 and 119 are directed to a housing and an internal structure with detector units to obtain different views from different orientations of a patient in different positions.

Group X. Claims 79-109 are directed to a dual imaging system with a 3D imager, a housing unit with detector units and a bed for motion through the imaging device, and a controller which controls the system.

Group XI. Claim 117 is directed to a radioactive probe to measure the breasts wherein there are two plates to compress the breasts and detection units on the plates.

Group XII. Claim 118 is directed to a housing which is shaped as a cup to fit the breasts, detection units, a vacuum source, and a control unit.

Group XIII. Claim 113 is directed to a radioactive measuring probe wherein there is a frame which is designed to be worn on the head, detection units, and a motion provider.